Psychological Reports, 1982, 50, 421-422. © Psychological Reports 1982

WILD-ALBINO HYBRIDS AND ALBINO RATS: THYROID WEIGHT BUT NOT MURICIDE DIFFERENCES

M. A. PERSINGER AND JANE LUNDGREN

Laurentian University[1]

Summary.—Offspring of 6 wild, male (brown-coated) dump rats (*Rattus norvegicus*) and laboratory albino females were compared with the offspring of albino rats on several tissue and muricide measures. At weaning, the 48 hybrid pups (all brown-coated), both vocalized and bit the experimenters' gloves; these behaviors were not apparent in the 40 albino pups. Adult hybrid rats did not kill significantly more mice than albino controls. Although hybrid rats had significantly lighter ($\omega^2 = 55\%$) wet thyroid weights than albinos, they did not differ in spleen, thymus, adrenal, or body weights.

Few studies have directly compared the biobehavioral characteristics of rats bred within the albino pool and those bred from albino and wild (brown-coated) rats (1, 2). The contribution of genetic background to behaviors can be estimated when wild male rats are bred with domestic laboratory female albino rats. In these instances, the effects of early wild experience are attenuated. The present study was conducted to determine if hybrid rats differed from albino controls on several tissue and muricide measures.

Six wild male rats trapped during May-June, 1977 in the Sudbury dump were mated with 90-day-old virgin albino Wistar female rats obtained from Biobreeding Laboratories. Six pairs of male and female albino rats of the same age were also bred during this period. About four to five days before birth, the pregnant females were removed from the males and placed in routine housing (1). The consequent six hybrid litters (all brown coats) and 5 albino litters were culled to eight pups within 48 hr. of birth.

The litters were weaned and weighed at 21 days of age and housed in pairs of the same sex. Blatantly obvious differences in the hyper-reactivity and responsivity of the hybrids were noted. All hybrid animals vocalized vigorously and bit into the gloves of the experimenters during the weighing procedure at weaning. None of the albino rats displayed this behavior.

At 90 to 100 days of age, a total of 40 rats (10 hybrids of each sex and 10 albinos of each sex) were housed singly (food and water *ad libitum*) in standard wire cages for 2 wk. During two 48-hr. periods separated by 2 wk., adult male or female Swiss albino mice were placed in the cages. The number of kills were recorded at the end of the exposure period.

No significant differences in muricide were noted. None of the albino rats killed any mice during any of the sessions. Two of the 20 (one male, one female) hybrid rats killed mice during the first exposure but not upon consequent exposures. The expected clear differences in muricide were not demonstrated.

A total of 16 hybrid rats (8 male, 8 female) and 10 albino rats (5 male, 5 female) were weighed and then killed by decapitation at 100 to 110 days of age. Half the numbers of each group had been in the muricide experiment; the remainder had been housed in pairs. Wet weights for the thyroid, thymus, adrenal, and spleen tissues were measured on an analytical balance.

[1]Sudbury, Ontario, Canada P3E 2C6.

Two-way analyses of variance (group = hybrid versus albino and sex) indicated only one statistically significant ($p < .001$) group effect ($F_{1,22} = 21.41$): thyroid weights ($\omega^2 = 55\%$). Means and standard deviations for absolute and relative thyroid weights for the hybrid rats were 20.3 ± 4.5 mg and 64.5 ± 16.7 μg/g and for the albino rats 31.3 ± 5.9 mg and 87.2 ± 21.2 μg/g. Although the covariate body weight was significant ($F_{1,22} = 9.25$), the main effect for group was not altered appreciably ($F_{1,22} = 22.54$). Sex differences were not statistically significant. The typical statistically significant sex differences, however, were noted in spleen ($\omega^2 = 35\%$), adrenal ($\omega^2 = 47\%$), thymus ($\omega^2 = 25\%$), and body ($\omega^2 = 80\%$) weights. The grand means for these measures were 482 ± 95 mg, 53.3 ± 11.8 mg, 343 ± 76 mg, and 344 ± 81 gm., respectively.

REFERENCES

1. LUNDRGEN, J., & PERSINGER, M. A. Activity and acquisition/extinction comparisons of brown- and white-coated litter mates. *Psychological Reports*, 1978, 43, 779-782.
2. MILLAR, R. Comparison of wild and domestic *Rattus Norvegicus* on variable interval reinforcement, discrimination and discrimination reversal. Unpublished doctoral dissertation, Univer. of Missouri, 1972.

Accepted January 28, 1982.